

C. TYPHOON WILDA 09 AUG 0500Z-15 AUG 1700Z

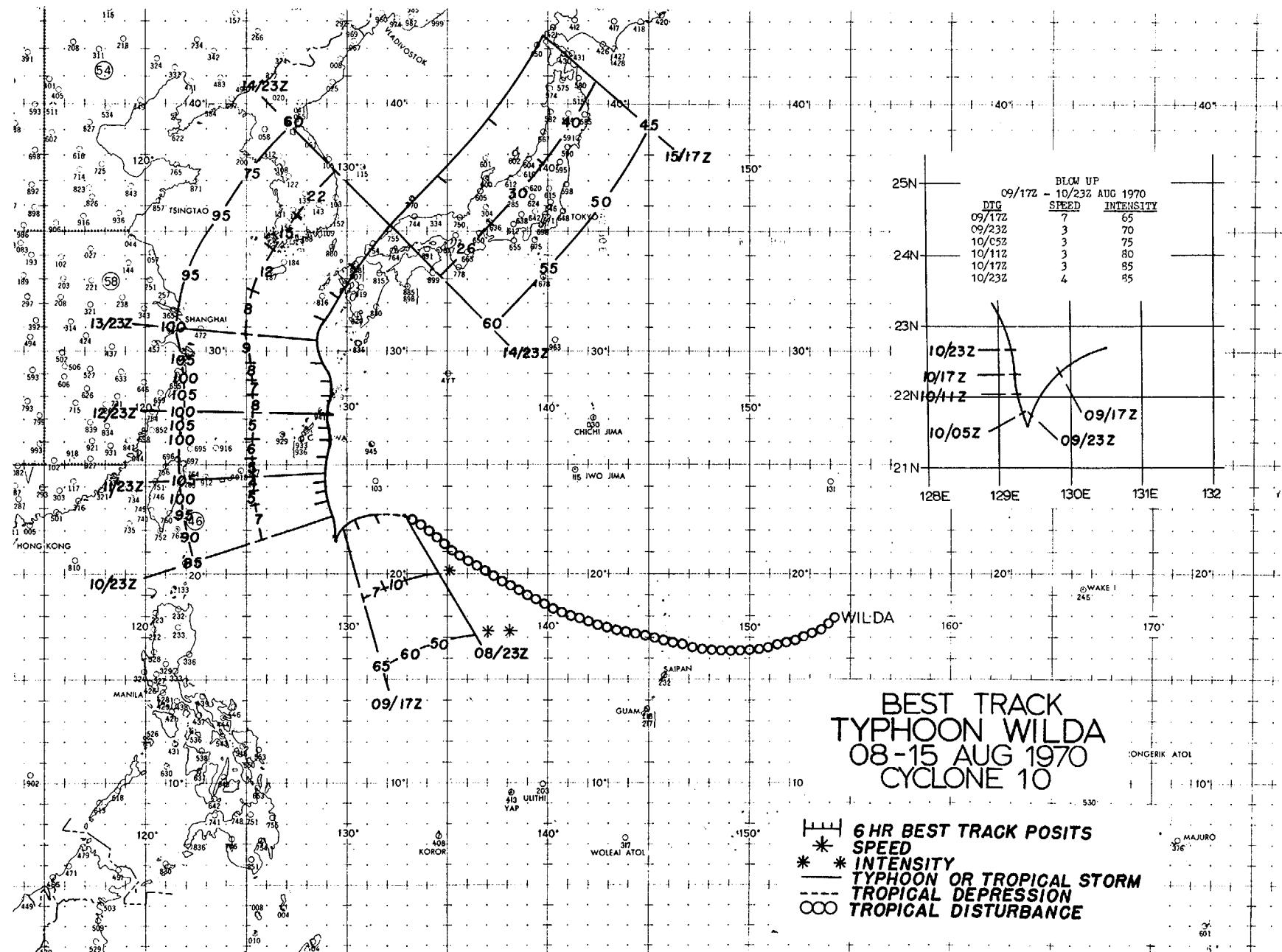
1. STATISTICS

- a. Number of Warnings Issued - 27
- b. Number of Warnings with Typhoon Intensity - 19
- c. Distance Traveled During Warning Period - 1,860 MI

2. CHARACTERISTICS AS A TYPHOON

- a. Minimum Observed SLP - 939 MBS at 11/2100Z
- b. Minimum Observed 700 MB Height - 2585 M at 11/2100Z
- c. Maximum Surface Wind - 105 KTS (From Best Track)
- d. Maximum Radius of Surface Circulation - 540 MI

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### 3. TYPHOON WILDA NARRATIVE

Wilda developed from a complex system that had its origin in the region south of Marcus Island. The ITOS-1 satellite pass on the 2nd of August indicated considerable convective activity was occurring in an area between Eniwetok and Marcus Island. This was related to a developing circulation in the upper tropospheric Mid-Pacific trough which had been initially evidenced in upper air data the day before.

An induced surface trough from this system drifted west and developed into a broad circulation as it passed through the Northern Marianas chain on the 6th. The presence of a 200 mb shear line to its north prevented any mechanism for sufficient outflow from the area and stifled further development. As the system crossed into the Philippine Sea a complex situation was created as no increase in net mass inflow into the circulation was noted. The depression expanded and covered some 300 miles in radius with two to three smaller surface circulations embedded as evidenced by ship data and satellite pictures. (Figure 5-6)

By the 9th the large circulation approached a more favorable environment as it neared an area of weak anticyclonic shear at 200 mb and less tropospheric vertical wind shear. ESSA-8 displayed a horseshoe cloud band oriented toward the north surrounding most of the depression and open to the south, with maximum convective activity located in the northwest quadrant. It was from this northwest portion that Wilda rapidly developed. A reconnaissance aircraft on an investigative mission in the vicinity detected a partially developed wall cloud with a central pressure of 986 mb.

Steering forces were weak at this point and the newly formed Wilda began a southwestward drift from a position 300 miles southeast of Okinawa. This movement was largely in response to the influence of the circulation around the massive low from which she developed.

During this time frame a mid-tropospheric high cell over the northern East China Sea began to retrograde leaving a weak trough area to the north of Wilda. As the high continued to recede, the typhoon began to drift northward under its own internal forces (Cressman, 1952) at 4 to 6 knots and intensify. The generally weak gradient between the split ridge line favored a slow northward movement for 3 days.

On this track the storm passed 35 miles east of Okinawa during the night of the 12th to the 13th bringing gale force winds to the island. Naha experienced 52 knots gusting to 64 knots with lowest barometer reading at 978 mb. The eye later passed over the western edge of Amami-o-Shima the following

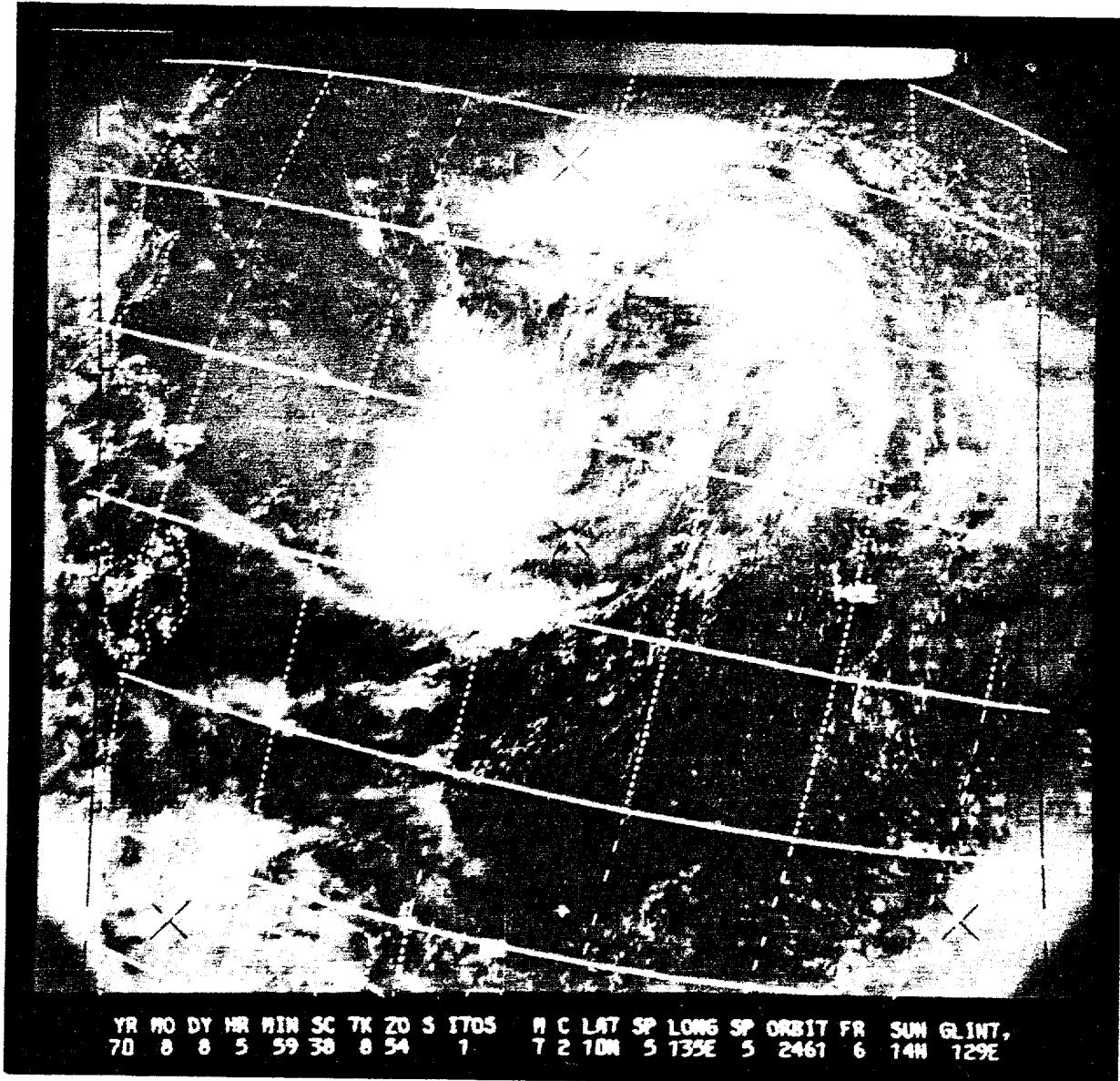


FIGURE 5-6 THE CLOUDINESS ASSOCIATED WITH THE LARGE PRE-WILDA DEPRESSION ON 8 AUGUST APPEARS AS A DISORGANIZED PATTERN TO THE ITOS-1 SATELLITE.

evening with a minimum pressure of 955.8 mb recorded at the island weather station.

In advance of an approaching trough in the westerlies moving off Manchuria, Wilda shifted to a northeast track on the afternoon of the 14th and gradually began to increase in forward speed. This course took the storm with 95 knot winds near the center over Western Kyushu near Nagasaki later that evening (Figure 5-7).

The typhoon was downgraded to a tropical storm as it entered the Sea of Japan with a rate of movement of 22 knots. Wilda started to quickly lose her tropical characteristics as she paralleled the western coast of Honshu some 120 miles offshore. After transforming to extratropical characteristics and skirting western Hokkaido on the 16th the system continued as a well-developed low after passage of the Kamchatka Peninsula on the 17th.

During its lifetime the typhoon reached its maximum strength of 105 knots while east of Okinawa and maintained itself near the 100 knot level until its landfall on the Japanese Coast. Damage reports placed at least 11 persons killed and 326 injured in Japan as the storm brought heavy rain (up to 18 inches) and strong winds to the southern portions of Japan. Over 2,800 houses were reported partially or totally destroyed and 97 vessels of various size sunk or washed away.

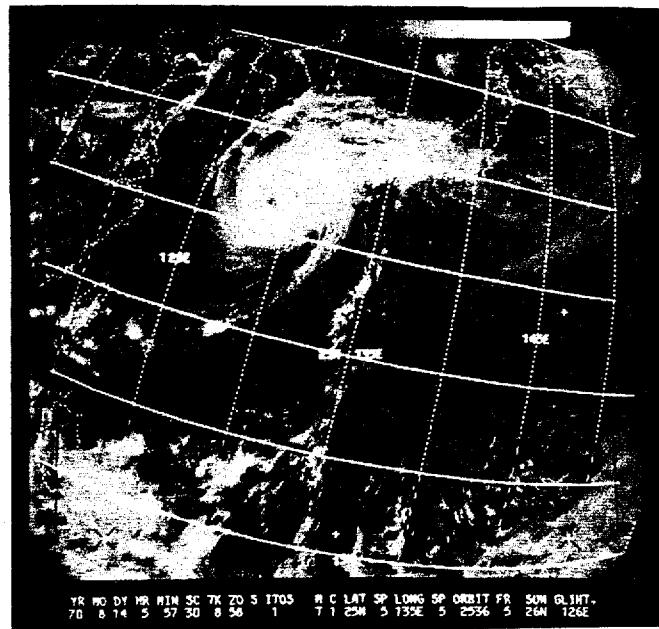


FIGURE 5-7 TYPHOON WILDA SOUTHWEST OF KYUSHU ON 14 AUGUST AS VIEWED BY ITOS-1 IN THE AFTERNOON (TOP) AND NIMBUS IV INFRA-RED (ORBIT 1716) THAT NIGHT (BOTTOM).

## TYPHOON WILDA

IX NO.	TIME	POSII	EYE F-XES CYCLONE			10	OBS	OVS	MIN	FLT	LVL	EYE	ORIEN-	EYE	CHARACTER	
			UN/T-	MET-00	-ACCY		FLT	LVL	SFC	MIN	700MB	HGT	TT/TO	FORM	TATION	DIA
1	090656Z	23.0N 130.5E	SLTLS	STG X	01A 02	CAT 2										
2	090700Z	22.8N 131.1E	VW-P-05---	0450M	---	040	986	---	27/23	ELIO	NW-SE	20X15	HLF MOON NNE TO S, 4NM THK			
3	090932Z	22.5N 130.7E	VW-P-05---	700MB	---	045	983	2937	28/24	CIR	---	13	4NM THK, OPEN S-SE			
4	091107Z	22.6N 130.3E	VW-P-----		---	---	---	---	---							
5	100020Z	21.7N 129.3E	54-P-03---	700MB	0/0	080	973	2893	20/16	CIRC	---	15	OPEN SE			
6	100250Z	21.7N 129.3E	54-P-03---	700MB	0/0	110	974	2890	21/11	CIRC	---	10	W/C NW-SE			
7	100602Z	21.0N 129.0E	SLTLS	STG X	01A 03	CAT 2										
8	100903Z	21.9N 129.3E	VW-P-05---		---	---	---	---	---							
9	100910Z	22.0N 129.5E	VW-P-08---		---	065	972	---	27/26	CIRC	---	25	5NM THK, OPEN NE QUAD			
10	101430Z	22.1N 129.3E	VW-P-05---	700MB	---	065	974	2810	27/23	CIRC	---	08	8NM THK, OPEN NNE			
11	102100Z	22.5N 129.1E	54-P-05---	700MB	000	080	970	2795	17/12	CIRC	---	25	OPEN N-NE			
12	110300Z	23.1N 129.1E	54-P-03---	700MB	0/0	090	964	2800	21/13	CIRC	---	20	W/C N QUAD/CLOSING/WK			
13	110400Z	23.5N 128.9E	LND RUR		---	---	---	---	---							
14	110658Z	23.0N 128.0E	SLTLS	STG X	01A 03	CAT 3										
15	110853Z	23.5N 129.1E	VW-P-05---		---	---	---	---	---							
16	110904Z	23.4N 129.0E	VW-P-05---		---	085	957	---	27/25							
17	111210Z	24.0N 129.4E	LND RUR		---	---	---	---	---							
18	111402Z	24.1N 129.0E	LND RUR		---	---	---	---	---							
19	111420Z	24.3N 128.7E	VW-P-03---		---	100	953	2679	27/24	CIRC	---	23	15NM THK, OPEN NW QUAD			
20	111500Z	24.2N 128.9E	LND RUR		---	---	---	---	---							
21	111600Z	24.2N 128.8E	LND RUR		---	---	---	---	---							
22	111700Z	24.3N 128.8E	LND RUR		---	---	---	---	---							
23	111800Z	24.3N 128.8E	LND RUR		---	---	---	---	---							
24	111900Z	24.4N 128.8E	LND RUR		---	---	---	---	---							
25	112000Z	24.5N 128.8E	LND RUR		---	---	---	---	---							
26	112100Z	24.6N 128.7E	54-P-1U---	700MB	095	---	944	2585	17/14	CIRC	---	25	OPEN NW			
27	112200Z	24.6N 128.8E	LND RUR		---	---	---	---	---							
28	120000Z	24.8N 129.0E	LND RUR		---	---	---	---	---							
29	120230Z	25.1N 128.8E	54-P-02---	700MB	005	080	950	2650	20/14	CIRC	---	20	5NM THK, OPEN SW-NW			
30	120559Z	25.2N 129.5E	SLTLS	STG X	01A 0	CAT 4										
31	120700Z	25.4N 128.9E	LND RUR		---	---	---	---	---							
32	120800Z	25.7N 129.0E	LND RUR		---	---	---	---	---							
33	120900Z	25.8N 129.1E	LND RUR		---	---	---	---	---							
34	120925Z	25.8N 129.2E	VW-P-15---		---	---	---	---	---							
35	121000Z	25.9N 129.2E	LND RUR		---	---	---	---	---							
36	121018Z	25.9N 129.1E	VW-P-02---		---	100	950	---	28/23	CIRC	---	22	5NM THK, OPEN W			
37	121100Z	26.0N 129.1E	LND RUR		---	---	---	---	---							
38	121300Z	26.2N 129.0E	LND RUR		---	---	---	---	---							
39	121400Z	26.3N 129.0E	LND RUR		---	---	---	---	---							
40	121445Z	26.3N 129.0E	VW-P-02---		---	---	---	---	---							
41	121500Z	26.4N 129.0E	LND RUR		---	---	---	---	---							
42	121700Z	26.0N 129.0E	LND RUR		---	---	---	---	---							
43	121800Z	26.7N 128.9E	LND RUR		---	---	---	---	---							
44	121900Z	26.8N 128.9E	LND RUR		---	---	---	---	---							
45	122000Z	26.9N 128.9E	LND RUR		---	---	---	---	---							
46	122100Z	26.9N 129.0E	54-P-02---	700MB	085	---	949	2682	17/11	CONC	40-20	OUTER-CLSD, INNER-OPEN W-N				
47	122300Z	27.0N 129.0E	LND RUR		---	---	---	---	---							
48	130030Z	27.2N 129.2E	LND RUR		---	---	---	---	---							

NO.	TIME	POSIT	EYE F-1ES CYCLONE			10 SFC HGT	OBS MNR SIP	OHS 700MB	MIN LVL IT/TO	FLT LVL FORM	EYE ORIEN- TATION	EYE DIA	CHARACTER WALL CLOUD	
			UV T-	MET OD	FLT									
			LACCY	LVL	WIND									
49	130300Z	27.5N 129.1E	54--U3--		700MB	100	100	941	2594	18/10	CIRC	----	15	OPEN NW-NE
50	130500Z	28.0N 129.1E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
51	130600Z	28.2N 129.0E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
52	130657Z	28.0N 129.2E	SLTLS	STG X	DIA 0	0	CAT 4							-----
53	130700Z	28.3N 129.1E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
54	130924Z	28.4N 129.1E	VW--U1--		850UM	---	085	945	2615	19/12	CIRC	----	30	CLSD, 18NM THK
55	131100Z	28.5N 128.8E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
56	131200Z	28.7N 128.8E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
57	131300Z	28.8N 128.9E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
58	131410Z	28.9N 129.1E	VW--U1--		850UM	---	---	941	2603	21/12	CIRC	----	30	15NM THK, NW&E QUAD
59	131500Z	29.2N 128.9E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
60	131600Z	29.4N 128.8E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
61	131800Z	29.8N 128.7E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
62	132000Z	30.1N 128.5E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
63	132200Z	30.3N 128.5E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
64	132300Z	30.4N 128.6E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
65	140100Z	30.6N 128.7E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
66	140300Z	30.9N 128.7E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
67	140300Z	30.9N 128.7E	54--U2--		700MB	085	085	950	2652	20/-	CIRC	----	35	CLSD, 5NM THK
68	140400Z	31.0N 128.7E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
69	140400Z	31.0N 128.8E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
70	140500Z	31.2N 128.8E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
71	140500Z	31.2N 128.9E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
72	140558Z	31.5N 129.0E	SLTLS	STG X	DIA 0	0	CAT 4							-----
73	140700Z	31.5N 129.1E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
74	140700Z	31.6N 129.1E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
75	140800Z	31.7N 129.2E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
76	140800Z	31.8N 129.2E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
77	140900Z	31.9N 129.2E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
78	140900Z	31.9N 129.2E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
79	140901Z	31.8N 129.4E	VW--U1--		700MB	---	075	941	2615	21/16	CIRC	----	23	4-12NM THK, OPEN SW
80	141000Z	32.1N 129.3E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
81	141000Z	32.1N 129.3E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
82	141100Z	32.2N 129.4E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
83	141100Z	32.2N 129.5E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
84	141200Z	32.4N 129.6E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
85	141200Z	32.5N 129.5E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
86	141200Z	32.7N 129.8E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
87	141300Z	32.6N 129.6E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
88	141400Z	32.9N 130.1E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
89	141400Z	32.8N 129.9E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
90	141405Z	32.6N 130.1E	VW--U1--		700MB	---	---	946	2731	18/13	CIRC	----	30	12NM THK, OPEN SW QUAD
91	141500Z	33.1N 130.2E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
92	141500Z	33.0N 130.1E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
93	141600Z	33.2N 130.2E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
94	141600Z	33.3N 130.3E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
95	141700Z	33.4N 130.4E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----
96	141702Z	33.5N 130.6E	LND	RUR	---	---	---	---	---	--/-	----	----	----	-----

FIX NO.	TIME	POSII	TYPHOON WILDA				EYE FIXES CYCLONE				CHARACTER	
			UNIT- MET-HD -ACCY	FLT LVL	WIND WND	SFC SLP	MIN 700MB HGT	FLT LVL TT/TO	EYE FORM	ORIEN- TATION		
97	141800Z	33.8N 130.8E	LND	RUR	---	---	---	---	---	---	---	
98	141800Z	33.8N 130.7E	LND	RUR	---	---	---	---	---	---	---	
99	141900Z	33.9N 131.1E	LND	RUR	---	---	---	---	---	---	---	
100	142000Z	34.0N 131.4E	LND	RUR	---	---	---	---	---	---	---	
101	142055Z	34.7N 131.6E	54-/-08---	500MB	051	---	---	---	---	---	---	
102	142100Z	34.5N 131.5E	LND	RUR	---	---	---	---	---	---	---	
103	142200Z	34.7N 131.9E	LND	RUR	---	---	---	---	---	---	---	
104	150000Z	35.3N 132.3E	LND	RUR	---	---	---	---	---	---	---	
105	150245Z	35.7N 131.9E	54-/-02---	700MB	045	---	---	3066	---	---	NEG W/C	
106	150800Z	38.4N 139.8E	LND	RUR	---	---	---	---	---	---	---	
107	151125Z	39.8N 139.8E	VW- -03---	---	030	976	---	25/22	---	---	NEG W/C	
108	151300Z	40.9N 139.1E	LND	RUR	---	---	---	---	---	---	---	
109	151400Z	41.5N 139.4E	LND	RUR	---	---	---	---	---	---	---	

5-26

## TYPHOON WILDA

TROPICAL CYCLONE 10 -- 8/8/2300Z TO 8/15/1700Z  
POSITION AND FORECAST VERIFICATION DATA

WARN NO.	DTG	WARNING POSIT LAT	LONG	BEST TRACK LAT	LONG	24 HR FCST LAT	LONG	24 HR ERROR DEG DIST	48 HR FCST LAT	LONG	48 HR ERROR DEG DIST	72 HR FCST LAT	LONG	72 HR ERROR DEG DIST
01	09/0500Z	22.8N	131.5E	22.8N	131.5E	22.8N	127.9E	310-0102	22.8N	124.4E	264-0252	-----	-----	-----
02	09/1100Z	22.6N	130.3E	22.5N	130.4E	21.9N	124.8E	269-0246	22.2N	118.8E	261-0558	23.0N	113.3E	258-0822
03	09/1700Z	22.3N	129.1E	22.2N	129.9E	21.9N	123.3E	265-0324	22.3N	117.3E	259-0642	-----	-----	-----
04	09/2300Z	21.8N	129.5E	21.7N	129.4E	20.6N	126.6E	228-0186	20.0N	122.4E	232-0456	20.6N	118.3E	237-0708
05	10/0500Z	21.7N	129.3E	21.7N	129.3E	21.7N	128.8E	184-0096	21.9N	127.1E	207-0228	-----	-----	-----
06	10/1100Z	22.0N	129.5E	22.0N	129.3E	22.7N	129.0E	169-0066	27.1N	125.0E	202-0144	25.0N	124.0E	231-0348
07	10/1700Z	22.2N	129.3E	22.4N	129.2E	23.3N	128.0E	211-0078	24.5N	125.0E	240-0246	-----	-----	-----
08	10/2300Z	22.6N	129.0E	22.7N	129.1E	23.7N	127.1E	236-0114	25.2N	123.6E	248-0312	27.1N	120.3E	246-0480
09	11/0500Z	23.3N	129.0E	23.3N	129.0E	25.4N	127.8E	275-0060	28.1N	125.1E	271-0210	-----	-----	-----
10	11/1100Z	23.6N	128.9E	23.8N	128.8E	25.5N	127.7E	211-0030	27.9N	125.4E	256-0192	29.8N	122.4E	248-0390
11	11/1700Z	24.4N	128.6E	24.5N	128.8E	26.6N	127.1E	270-0102	28.7N	124.3E	259-0234	-----	-----	-----
12	11/2300Z	24.8N	128.6E	24.8N	128.9E	26.7N	127.9E	241-0060	29.1N	127.4E	218-0096	31.3N	128.7E	216-0276
13	12/0500Z	25.3N	128.8E	25.3N	129.0E	27.1N	128.6E	204-0054	28.9N	128.3E	170-0138	-----	-----	-----
14	12/1100Z	26.0N	129.3E	26.0N	128.1E	27.6N	132.7E	108-0198	29.4N	137.1E	114-0426	32.8N	145.3E	134-0564
15	12/1700Z	26.6N	129.0E	26.6N	129.0E	28.6N	130.2E	126-0090	30.8N	134.7E	125-0264	-----	-----	-----
16	12/2300Z	27.1N	129.0E	27.2N	129.0E	29.5N	128.9E	167-0054	31.9N	128.9E	218-0246	35.7N	130.1E	-----
17	13/0500Z	28.0N	129.0E	28.0N	129.1E	35.8N	136.0E	053-0450	-----	-----	-----	-----	-----	-----
18	13/1100Z	28.7N	129.0E	28.7N	129.1E	32.9N	129.6E	010-0036	38.0N	133.0E	245-0204	-----	-----	-----
19	13/1700Z	29.4N	129.0E	29.5N	128.8E	33.8N	129.9E	314-0030	38.5N	133.5E	229-0378	-----	-----	-----
20	13/2300Z	30.4N	128.5E	30.4N	128.6E	34.1N	130.2E	235-0102	39.2N	134.2E	-----	-----	-----	-----
21	14/0500Z	31.2N	128.6E	31.2N	128.8E	34.7N	130.8E	230-0234	39.9N	134.6E	-----	-----	-----	-----
22	14/1100Z	32.1N	129.5E	32.3N	129.5E	36.4N	133.1E	226-0258	42.7N	136.7E	-----	-----	-----	-----
23	14/1700Z	33.4N	130.5E	33.4N	130.4E	37.6N	134.0E	221-0402	43.9N	137.0E	-----	-----	-----	-----
24	14/2300Z	34.9N	132.0E	35.1N	132.0E	43.0N	136.8E	-----	-----	-----	-----	-----	-----	-----
25	15/0500Z	37.0N	134.9E	37.3N	134.5E	-----	-----	-----	-----	-----	-----	-----	-----	-----
26	15/1100Z	39.9N	138.0E	39.5N	137.0E	-----	-----	-----	-----	-----	-----	-----	-----	-----
27	15/1700Z	42.9N	140.8E	42.7N	139.7E	-----	-----	-----	-----	-----	-----	-----	-----	-----

AVERAGE 24 HOUR ERROR - 0146 MI. 146.6  
AVERAGE 48 HOUR ERROR - 0290 MI.  
AVERAGE 72 HOUR ERROR - 0512 MI.